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## The emergence of expanding space-time in a novel large- $N$ limit of the Lorentzian type IIB matrix model

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The Lorentzian type IIB matrix model is a promising candidate for a nonperturbative formulation of superstring theory. However, it was found recently that a Euclidean space-time appears in the conventional large- $N$  limit. In this work, we add a Lorentz invariant mass term and consider a limit, in which the coefficient of the mass term vanishes at large  $N$ . By performing complex Langevin simulations to overcome the sign problem, we observe the emergence of expanding space-time with the Lorentzian signature.

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